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(6) Job-Related Reading Tasks: Teaching Marginally Literate Adults to Read.

(10) by
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The preparation and publication of the enclosed HumRRO Professional Paper, "Job-Related Reading Tasks: Teaching Marginally Literate Adults to Read," PP 10-78, October 1978, was not supported by DoD funds. However, it is based, in part, on work HumRRO did for the Army, and it occurred to me that you might be interested in accessioning it on that ground.

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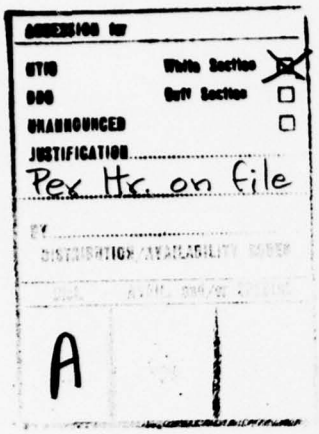

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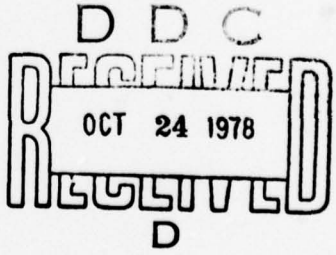
PREFATORY NOTE

HumRRO has been conducting research in the area of literacy training for more than a decade. This research has produced literally dozens of reports and two summarizing paperback books, *Auding and Reading: A Developmental Model* and *Reading for Working: A Functional Literacy Anthology*.

The two papers which make up this HumRRO Professional Paper are a part of the literature of this program. They were prepared five years ago for inclusion in a book then being planned by the International Reading Association. For a variety of reasons, that book was never published. The papers are "packaged" in this form to make them available to other researchers and to those in the education community who are concerned with literacy, illiteracy, and adult basic education.



JOB RELATED READING TASKS FOR ADULTS

Thomas G. Sticht and John S. Caylor[1]

A major concern with illiteracy, on the part of both society and the functionally illiterate, is economic. Society considers the functionally illiterate as a drain upon economic resources, or at least as a non-contributor to economic development. The functionally illiterate views literacy primarily as a means to better jobs and higher incomes (Nicholson and Otto, 1967). For these reasons, "functional" literacy would seem usefully defined in relation to the reading skills required to perform the tasks necessary to become and remain gainfully employed.

In this paper we will discuss job related reading tasks in relation to a model of reading for employability which involves three sets of reading tasks: Set 1 consists of reading tasks involved in finding out about the availability of a job, applying and qualifying for it. Set 2 consists of reading tasks involved in successfully completing the job training program. Set 3 consists of reading tasks involved in proficiently performing the job. Thus we have taken as our model the typical personnel sub-system structure for large organizations consisting of Recruitment, Selection and Placement, Job Training, and Job Performance, and we have translated this into sets of reading competencies needed to render a job aspirant employable. By this approach *reading for employability* means to be able to perform reading tasks to find and qualify for a job, succeed in the job training program, and perform effectively enough on the job to keep it.[2]

Overview of the Three Sets of Reading Tasks

While it is obvious that certain reading skills are common to *all* three Sets of reading tasks, e.g., recognition of non-technical words, each Set is characterized by tasks which make a greater demand for certain information processing activities than do the others.

Set 1, reading tasks for getting a job, is characterized by reading tasks in which knowledge from the reader's previous learning is matched to brief presentations of (help wanted ads) or solicitations for (application forms; qualification tests) information. In the case of reading help wanted ads, the reader must be able to form some mental representation of job-related printed words in his head and scan the newspaper ads to find a match to these representations. Pertinent information must be jotted down or remembered long enough to make arrangements to apply for the job.

Filling out job application forms and answering qualification or classification tests places a premium on the ability to recall the correct information when prompted by the items on the form or the test. Assuming that the person has the requisite knowledge

[1] The research reported in this paper was performed at HumRRO Division No. 3, Monterey, California. It was supported in part by Department of Army Contract DAHC 19-73-C-004. The contents of this paper do not necessarily reflect official opinions or policies of the Department of Army. Reproduction in whole or in part is permitted for any purpose of the Department of Army.

[2] We recognize that *reading* is only one of a set of skills and knowledges needed to become employable. For a complete program of employability training see Osborn, et al., 1972.

needed to correctly respond to these items, the task consists of recognizing the printed words and short phrases so that the appropriate response can be made, and scanning the forms sufficiently to insure that all requested information is provided.

While the Set 1 tasks emphasize the print-prompted *recall* of information previously learned, the Set 2 tasks are characterized by their demands for the learning of new information presented in printed form such as programmed texts, computer displayed texts, and traditional textbooks. The types of reading skills involved are those typically construed as "comprehension and study skills" (Tinker and McCullough, 1962). To *comprehend* the learner must know the vocabulary of the text. To *learn* he must know how to select, organize, and rehearse the information to construct main ideas, concepts, and principles. To be successful in the training program, he must have the speed and flexibility of reading to process the required information in the time allotted.

Set 3, job performance reading tasks, are characterized by their application to a problem immediately at hand. Job reading materials typically serve a reference or consultative function. Thus, a mechanic may consult a technical manual to determine the proper adjustment to give a piece of equipment; a parts clerk may look up a stock number in a parts catalog; an insurance salesman may look up the proper procedure for filling out an application, etc. The reading skills are those required to efficiently use reference sources, for example, the use of tables of content and indexes; to follow procedural directions, to use tables and graphs and the like.

Unlike the Set 2 reading tasks, the Set 3 tasks place *relatively* little emphasis upon long-term retention (learning) of information sought from the reading materials; nor do the Set 3 tasks *typically* emphasize the need to recall previous information to the extent that the Set 1 tasks do. Rather, the Set 3 reading tasks emphasize the use of the information in job reading materials to accomplish some job task. Succinctly, the three sets are distinguished by their relative emphasis upon recall (Set 1), retention (Set 2), and reference (Set 3)—the three R's of job related reading tasks for adults!

In the remainder of this paper we will discuss the Set 1 and Set 3 job related reading tasks. The Set 2 tasks encompass too large an area (comprehension skills) for adequate treatment in this brief chapter.

Observations on Some Set 1 Tasks: Reading to Get a Job

Of the various tasks comprising Set 1, two of the most frequently encountered tasks are reading employment ads and reading and filling-in application forms. It is of interest to know how well the adult population in general, and the adult population comprising the ABE clientele in particular are able to perform these tasks.

In a recent nationwide survey,[1] adults 16 years old and above were tested on, among other things, their ability to read three employment ads typical of those found in major U.S. newspapers, with the exception that no abbreviations were used. The procedures, ads, and questions are described as follows in the technical report of the survey:

> "In Section III, show cards presented three job ads as they might appear in the classified section of a newspaper. 'As you probably know,' those interviewed were told, 'the unemployment rate is high in the country today. Many people check the classified ads regularly to find jobs. Some people however, have difficulty using classified employment ads. We'd like your help here also.'

[1] Harris and Associates, *The 1971 National Reading Difficulty Index: A Study of Functional Reading Ability in the U.S. for the National Reading Center.* August, 1971.

Respondents were then handed a show card, on which appeared the following advertisement:

'If you're looking for an interesting job, work as a secretary in our law firm. Skills necessary—typing. Benefits include full medical insurance.'

Three questions followed which drew upon the information contained in the job ad:

5a. 'Would you please look at this ad and tell me what job is being offered?'

5b. 'How does the ad describe the skills necessary for this job?'

5c. 'How does the ad describe the benefits that come with the job?'

A second show card contained the following classified ad:

'Mail clerk. Opening for high school graduate, no college necessary. Evening working hours.'

Once again, three questions were based on this ad:

6a. 'What job is being advertised here?'

6b. 'How does the ad describe the educational background necessary for that job?"

6c. 'How does the ad describe the working hours for this job?'

Finally, a third show card was used with another job ad:

'Opportunity as shipping supervisor of a major steel distributor. Must have experience with steel company. Good starting salary.'

Respondents then were asked to answer the following questions:

7a. 'What job is being advertised here?'

7b. 'How does the ad describe the experience necessary for this job?'

7c. 'How does the ad describe the salary offered?'

All in all, Section III (Employment Classified Ads) contained a total of nine questions. There was, therefore, a possibility of nine correct answers for this series."

Data analyses indicated that, for the population as a whole, 92% answered 9 out of 9 correct, while an additional 7% answered 7 or 8 items correct. However, a large difference was found in comparisons of whites and blacks, with 95% of whites getting 9 out of 9 correct, while only 70% of blacks got all items correct and 89% got 7 or more items correct. Of respondents reporting incomes less than $5000, 83% got 9 out of 9 correct. Perfect scores were obtained by 75% of persons reporting less than 8th grade education. The results indicate then that less educated, poor and black respondents constitute the groups less able to perform the critical task of reading simple employment ads with complete facility. It should also be noted that in this task, the interviewer orally asked the questions, and also filled-in the response on the answer sheet. Thus, the task difficulty was diminished over that typically involved in forming one's own questions and jotting down the key inforamtion.

An indication of the increase in difficulty produced by having to do the filling-in component was obtained when the application form task was presented. The form contained seven major sub-sections:

"Section 1: Personal Identification Series (10 items: name; place of birth, sex; age; etc.)

Section 2: Employment Series (4 items: current employment status; job; previous employer; etc.)

Section 3: Income Series (3 items: total annual income; bank; etc.)

Section 4: Housing Series (8 items: telephone number; number of rooms; etc.)

Section 5: Automobile Series (3 items: automobiles owned; driver's license; etc.)

Section 6: Medical Series (3 items: number of visits to doctor; insurance policies; etc.)

Section 7: Citizenship Series (6 items: country of citizenship; passports; etc.)"

The test form was a synthesis of items from the following forms: the Social Security form, the application for public assistance, the application for Medicare, an application for a driver's license, the original claim for unemployment benefits, the Selective Service System current information questionnaire, the United States individual income tax return form, the U.S. passport application, a typical credit card application, and the United States census form. In filling-in the form, respondents were permitted to use fake data if they didn't want to reveal actual, personal information.

Table 1 presents a summary of selected information as to how well groups of interest to ABE performed on each section of the application. The entries in the table show the percentage of respondents in the different groups who correctly filled in all items for a given section of the form. The major point of interest for present purposes is that, once again, the highly intercorrelated factors of being black, poor, and undereducated routinely exhibit performance levels below that of the total and white populations.

Table 1

Percentage of Respondents Scoring 100% Correct on Each Section of an Application Form

Type of Information	Number of Items	Ethnic Group			Income	Education
		Total	White	Black	Under $5000	8th Grade
Personal	10	93	94	75	85	78
Employment	4	85	86	72	76	71
Income	3	77	78	67	74	70
Housing	8	87	88	72	83	80
Automobile	3	97	99	92	96	92
Medical	3	86	87	79	85	82
Citizenship	6	87	89	71	80	71
	Median	87	88	72	83	78

To obtain some idea of the reading problem implied by these data, we can extrapolate from this representative sample to the general adult population of adults 16 years

of age or older. Using 87% (the median for the *total* group) as the most probable proportion of respondents to get any one section of the application form completely correct, at least 13% or 18,362,500 adults would fail to complete the form with 100% accuracy.

If a person was permitted one mistake in a given section, data from the report indicates that some 4% or 5,600,000 Americans would fail the section. These proportions would, of course, increase for the blacks, undereducated, and poor groups. These data confirm what persons in ABE know—a sizable number of persons need instruction in accomplishing the most fundamental, Set 1 job reading tasks. By obtaining the Harris and Associates report, an ABE teacher could determine how well students in the class perform on the various job-related tasks compared to the total population and other special populations.

Observations on Some Set 3 Tasks: Reading to Do a Job

What are the reading tasks which American adults (16 years old or older) typically perform on-the-job? This question was asked in a recent national survey conducted by Educational Testing Service for the U.S. Office of Education (Sharon, 1972). Results indicated that:

> "The most common type of reading is the reading of notices or signs in which about 1 out of every 5 persons engage for an average of 5 minutes. Letters, memos, or notes are also popular at work as they are read by 16% for an average of 16 minutes. Among other frequently read items at work are manuals or any written instructions which are read for an average of 17 minutes; forms (21 minutes), order forms, invoices, or account statements (20 minutes); schedules or lists (7 minutes); telephone or address books (13 minutes); reports, pamphlets, or articles in publications (19 minutes); labels or writings on packages (6 minutes); catalog, brochure, or printed advertising (9 minutes); specific work-related materials (30 minutes); and legal documents (29 minutes)." (P. 16)

The types of reading tasks encountered in doing a job are thus seen to offer much greater variability than found in the Set 1 reading tasks. Depending upon the nature of the job (e.g., professional versus skilled tradesman), the varieties and number of reading tasks to be accomplished will be more or less extensive. However, because the bulk of the ABE teachers' clientele who are interested in employability will be aiming toward semi-skilled or skilled trades, we will limit our discussion to job reading tasks which we estimate to be more typical of trades such as automotive mechanics, carpentry, commercial cooking, clerical, machinist, etc.

Limited data concerning job reading tasks in such occupations are available from our work with Army jobs (Sticht & Caylor, 1972). In this research, employees (servicemen) working as automotive mechanics, supply clerks and cooks were asked to report job tasks they had recently completed for which they had used reading materials. They were also asked to show us what materials they had used and what they had used them for. Results indicated that most job reading involved looking-up some piece of information, e.g., how much torque to apply to a wheel nut, or following some procedural direction, or extracting some factual information from a table, graph, or picture. In other words, the materials were referred to for specific information useful for accomplishing the task at hand. Thus the *reference* nature of job reading tasks seems to typify reading tasks involved in doing a job. Reading to "comprehend main ideas," "critical reading," "drawing inferences" and other "comprehension skills" did not typify reading tasks

accomplished in doing a job. As mentioned earlier, the latter tasks we would surmise are of greater importance in *learning* a job, because they involve active imposition of organization on what is read, and such organizational processes apparently aid in remembering what is read for long periods of time. Such memory is not needed for accomplishing an immediate job task.

A striking differentiation of the "reference" and "comprehension" skills is given in the summary of the National Assessment of Educational Progress in the area of Reading (1972). This assessment presents data for 9, 13, and 17 year olds and young adults (25-35 year olds) on reading tasks representing 8 themes:

1. Word Meanings: Understand word meanings in isolation and in context.
2. Visual Aids: Interpret drawings, pictures, signs, labels, charts, graphs, maps, forms.
3. Written Directions: Understand and carry out written directions.
4. Reference Materials: Know appropriate reference sources; use reference materials correctly.
5. Significant Facts in Passage: Recognize and retain factual information; understand relationships among facts.
6. Main Ideas and Organization of Passages: Identify main ideas (identify topics; identify central thoughts); discover organization.
7. Inferences from Passages: Draw inferences from information given and from given plus additional information.
8. Critical Reading of Passages: Understand literary devices; recognize mood and time; discriminate fact from opinion; recognize author's purpose; recognize and evaluate sources.

Figures 1A and B reproduce figures 8-5 and 9-5 from the Reading Summary (1972) report. These figures report performance data for 17 year olds (Figure 1A) and young adults (Figure 1B) on tests representative of the 8 themes. Data are presented for the total sample (column labeled NAT) and for sub-samples coming from families where the parents had no high school education (NHS), some high school (SHS) etc., as indicated in the KEY to Figure 1.

Two major conclusions can be drawn from these data. First, the influence of parental education is overwhelming. The higher the educational level of the respondent's parents, the better the respondent's reading performance. Inasmuch as being black, being poor, and being poorly educated are highly intercorrelated phenomena, these data are coordinate with the data from the Harris Survey, described earlier, in showing the pervasive influence of the "culture of poverty" on reading performance (ability).

A second conclusion of special interest for its bearing on the present discussion is the order of difficulty of the various "thematic" reading tasks. Best illustrated in Figure 1A for the 17 year olds, but also found in the rank-ordering of tasks for the young adults in Figure 1B, is the fact that tasks identified in the present paper as *reference tasks are grouped together as the easier thematic tasks* (themes 2, 3, 4, 5) while "comprehension" themes are grouped together and form the more difficult thematic tasks (themes 8, 6, 1, 7).

Unfortunately, the NAEP Reading Summary report provides little descriptive data regarding the Young Adults and so we do not know their educational levels and have no way of knowing why their performance on the "reference" tasks was superior to that of the 17 year olds. However, *if* the Young Adults had a history of employment, and *if* as the data of Sharon (1972) and Sticht & Caylor (1972) suggest, jobs do make more

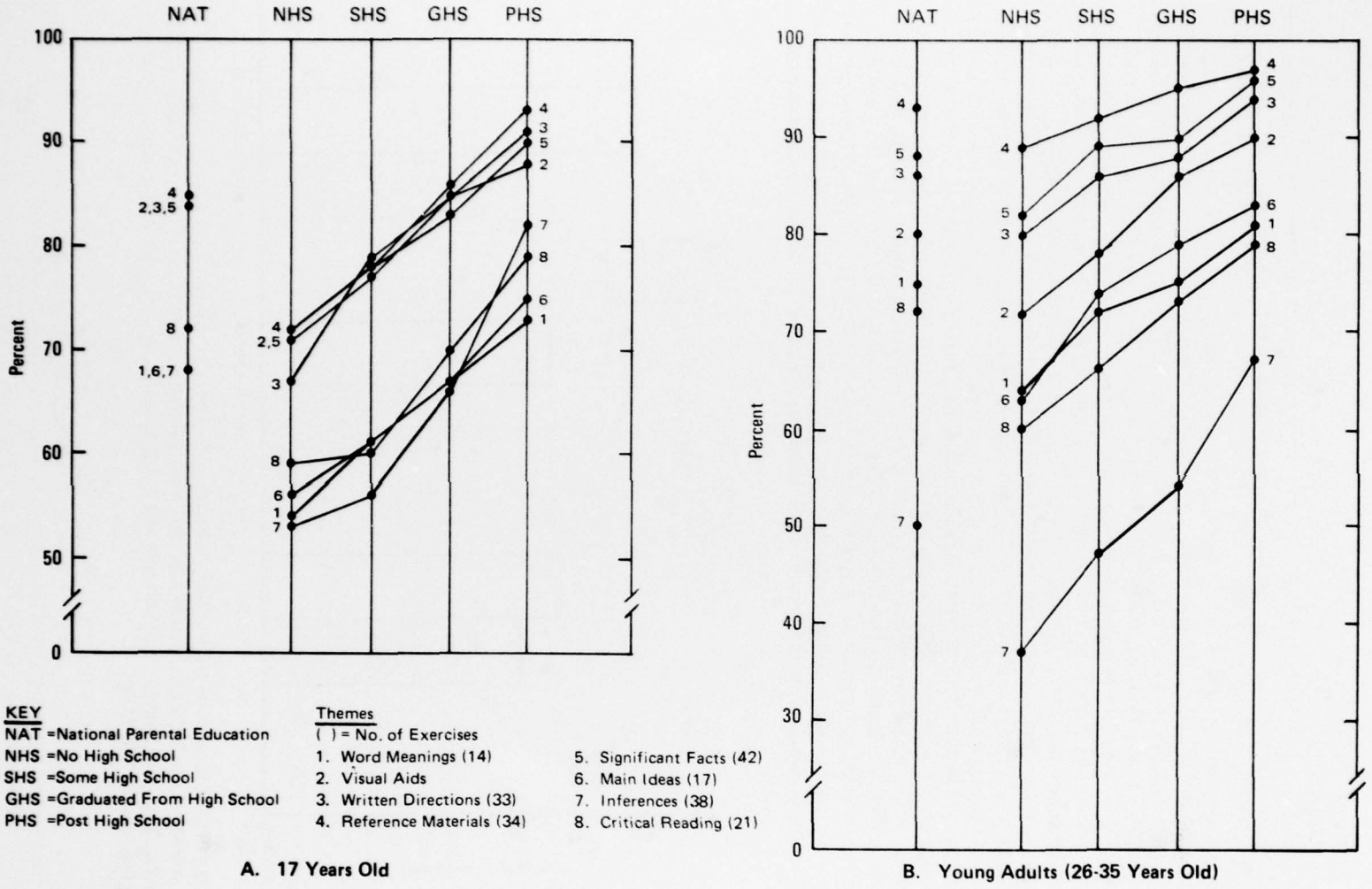
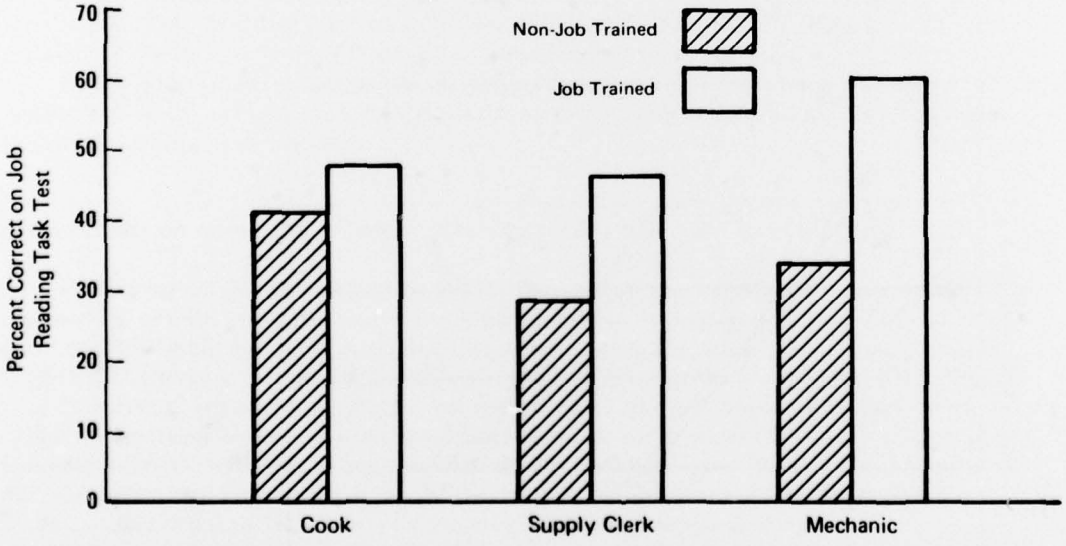

NAT
NHS
SHS
GHS
PHS
100
90
80
70
60
50
0
Percent
4
2,3,5
8
1,6,7
4
2,5
3
8
6
1
7
4
3
5
2
7
8
6
1
KEY
NAT =National Parental Education
NHS =No High School
SHS =Some High School
GHS =Graduated From High School
PHS =Post High School
Themes
( ) = No. of Exercises
1. Word Meanings (14)
2. Visual Aids
3. Written Directions (33)
4. Reference Materials (34)
5. Significant Facts (42)
6. Main Ideas (17)
7. Inferences (38)
8. Critical Reading (21)
A. 17 Years Old
NAT
NHS
SHS
GHS
PHS
100
90
80
70
60
50
40
30
0
Percent
4
5
3
2
1
8
7
4
5
3
2
1
6
8
7
B. Young Adults (26-35 Years Old)

Figure 1

of a demand upon "reference" tasks than do schools, perhaps the Young Adults were more experienced in the "reference" tasks and hence better able to perform them.

Evidence is available to suggest that the job related, "reference" reading tasks may be improved without concurrent improvement in the Set 2, general reading "comprehension" skills. Figure 2 presents data from a study by Sticht & Caylor (1972) in which job related reading task tests were constructed using materials from the U.S. Army's Cook, Supply Clerk, and Automobile Mechanics occupational fields. These job reading task tests (JRTT) included tests on the use of indexes, following procedural directions, looking for and extracting information from job manuals, and filling out job forms. The JRTTs were administered to two groups of Army personnel: one group consisted of men new to the Army and not trained in any specific job; the second group consisted of men who had undergone 8 weeks of training in the job areas represented by the JRTTs. Data presented are for men reading at the 5th grade level as measured by a standardized reading test. Figure 2 shows that whereas both groups of men read at the 5th grade in general reading ability, the job-trained men performed considerably better than the non job-trained men on the job-related reading task test for their job field. Thus we see that, though the job-trained, less literate men do not perform completely adequately in job reading (job-trained men reading at the 9th grade level of general reading scored 83%, 65%, and 84% correct on the Cooks, Supply Clerks, and Mechanic tests respectively), they none-the-less are able to acquire *specific* job reading skills and knowledges to permit them to use the job reading materials better than non-trained men. Tests of general reading abilities may not, therefore, indicate the true potential of marginally literate men.



Improvement on job reading task tests for men having no job training and men trained for 8 weeks in the indicated job fields. All men have general reading scores at the 5th grade level. The data suggest that job specific reading skills can improve while general reading skills remain the same.

Figure 2

Summary and Implications for Teacher Training

In this paper we have identified three Sets of job related reading tasks. Set 1 tasks are those involved in getting a job, such as reading employment ads, filling in application forms and so forth. Set 2 tasks are concerned with reading to learn a job, and involve the types of tasks characteristic of tasks used in teaching "comprehension skills" in reading. The third set of job reading tasks were identified as those reading tasks used in doing a job. These tasks were characterized as "reference" tasks in which job reading materials are referred to for information needed to accomplish some task at hand.

Data from several national surveys indicated that there is, indeed, a lack of capability in performing job reading tasks in the adult population constituting the bulk of the ABE classroom: the undereducated, black, "culture of poverty." However, evidence was also presented to suggest that experience in the world of work, as in job training, might well produce job-specific reading skills and knowledges and hence permit the marginally literate person to function more adequately on the job than his general reading ability scores might predict.

Implications of this review are that: (1) ABE students will, by and large, need training in reading to get a job, reading to learn a job (though this type was not discussed at length in this paper) and reading to do a job; (2) reading training focused on performing these specific job reading tasks rather than on improving "general reading ability" may produce task-specific improvements in job reading skills, possibly more quickly rendering the job oriented student employable, and making additional reading training more enjoyable.

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ACKNOWLEDGEMENTS

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AUDING AND READING SKILLS IN CHILDREN AND MARGINALLY LITERATE MEN: IMPLICATIONS FOR ABE

Thomas G. Sticht and James H. James[1]

In this paper we discuss research on the auding and reading skills of typical children and marginally literate men.[2] This research provides persons interested in adult basic education (ABE) with information about differences between children and marginally literate men as a language users and reading students. The research also has implications for teaching marginally literate men to read.

Our experience in ABE comes from an extensive series of research and development projects to design and implement a job-related literacy training program for the U.S. Army (Sticht et al., 1972; Sticht and Caylor, 1972; Sticht et al., 1973). That is why we are talking about marginally literate men, rather than the general adult population who attend ABE.

The men we have been concerned with are young men who have entered military service for one or another reason. Some have been draftees, but since the cessation of the draft, all have been volunteers for service. We call them marginally literate men (MLM) because, for the most part, they read within the range from grade 4.0 to 7.0 when their reading is measured by any of a variety of standardized reading tests. Thus they are not total illiterates, rather their literacy skills are such that they are what economists would call of marginal utility: when a company or large organization has a large manpower pool of more highly literate men to choose employees from, the MLM will not be selected. When there are not sufficient numbers of more highly literate men to choose from in the manpower pool, then the MLM are selected. However, when times are bad, and a company must reduce its manpower force, the MLM will be among the first to go. Hence they have literacy skills which keep them in the margin of utility, and so we call them marginally literate men.

The MLM with whom we have worked are of 17-25 years of age. Most are high school or GED graduates, yet they lack competent reading skills. Many are dropouts who have had extensive problems with the law; many are from minority groups where non-standard English or a language other than English is used in the home. In many respects, then, this paper concerns young men such as found in Job Corps Centers, Neighborhood Youth Corps, various rehabilitation centers (i.e., reformatories) and continuation schools. Many are currently being found in community colleges. This paper has most relevance for ABE teachers in these kinds of settings.

[1] The research reported in this paper was performed at HumRRO Division No. 3, Monterey, California. It was supported by Department of Army Contract DAHC 19-73-C-004 and Department of Air Force Contract AFHRL/TT F41609-73-0025.

[2] Auding is a word coined by Brown (1954) to name the special kind of listening we do when we listen to speech. Just as reading is a special kind of looking, i.e., looking at printed language to get meaning, auding is a special kind of listening: listening to spoken language to get meaning.

A Heuristic Model

All applied fields of endeavor, of which teaching is only one, involve an element of creative, artistic, craftsmanship. For instance, there are no fail-proof rules for an electrical engineer to apply the information she has of theoretical physics to the building of a television set, and so she must depend partly on artistic and creative skills. However, the knowledge the engineer has of her craft contains rules-of-thumb which, while they do not insure an operating product, guide the development of the product. Such rules-of-thumb are called *heuristics.*

One type of heuristic which we have used and which may help ABE teachers in doing their jobs is a *model*[1] of the developmental sequence which the "typical" child goes through in our literate society to acquire reading skills. The value of such a model is that, if we know how language and reading "typically" develop, we can find out how MLM of differing reading ability levels compare to the "typical" case, and perhaps use this knowledge in the development of our teaching program. Furthermore, the model can serve as a mnemonic or aid to memory, by providing a plan for organizing our information about MLM and the reading process. It is only when our information is organized that we truly have knowledge, i.e., a structured set of facts, concepts, and principles, which, in turn, provides the major resource we have for devising rules-of-thumb (heuristics) for effective teaching.

Our model of the typical-for-this-country development of reading skills contains three major stages[2]: In stage 1 the child is born with certain basic adaptive processes (BAP) such as sensory, perceptual, cognitive, and motor processes which he or she uses to adapt to the environment. In stage 2 (2-5 years), the child acquires the language skills of auding and speaking (the *oracy* skills) and in stage 3 (6-14 years) the child extends his language skills to include reading and writing (the *literacy* skills). An important feature of this model is that it states that the language abilities that a person uses for comprehending spoken language (i.e., auding) are the same language abilities that a person uses for comprehending written language (i.e., reading). It also states that the ability to comprehend by auding occurs before the ability to comprehend by reading. This being the case, we would expect, at least with children in their early school grades, that they would comprehend better by auding than by reading. If they do, then a reasonable teaching objective for elementary school children would seem to be to teach them to read as well as they can aud.

If we consider, now, the extensions of this model to teaching reading in ABE, we would reason that, the ABE reading student has an advanced (compared to elementary school children) auding capability, and hence teaching reading will involve simply the teaching of the decoding skills needed to convert the written language into the language-form comprehended by auding. Once these decoding skills are automatized, the ABE student's reading problems will be solved.

But is this so? Is the situation with MLM, for instance, the same as for elementary school children? That is, are the MLM's auding comprehension skills comparable to those of his literate peers, while his singular difficulty is lack of competency in reading print? Or is the MLM who reads, say, at the 5th grade level, operating at an auding level of 5th grade as well as a reading level of 5th grade? If so, then the MLM is not only low in reading ability, he is low in language ability.

[1] A *model* is a form of theory which describes some process or event.
[2] This model is described in greater detail in Sticht and James, (1973).

Some Comparisons of Auding and Reading Skills in Children and MLM

Auding vs. Reading vs. Auding + Reading: To find out how a group of MLM compared to elementary school children in the relative effectiveness of their auding and reading competencies, we presented 3rd, 4th and 5th grade pupils in a middle-class (or slightly higher) elementary school with materials for auding, reading, or simultaneous auding and reading. The story, about Roland and Charlemagne, was written at the 5th grade level of difficulty according to a readability formula (Clark and Woodcock, 1967).

There were 18 children in each grade level. One-third at each grade level auded the first part of the Roland story, read the second part, and simultaneously read and auded the third section of the 2,807 word story. A second third read the first part, simultaneously read and auded the second part, and auded the third part of the story. The final third simultaneously auded and read the first part of the story, auded the second, and read the third part of the story. When presented in the auding and auding + reading modes, the rate of presentation was 128 WPM. When presented for reading, the reading time was kept equal to the time needed to present the message for auding. Thus, all students performed auding, reading, and simultaneous auding-reading tasks, and each third of the Roland passage was auded, or read, or simultaneously read and auded for the same amount of time. These procedures were introduced to make sure that differences in scores would not reflect differences in the materials or the questions asked about the three sections of the story. The latter were given as 15-item tests following each third of the Roland story. All testing was in the combined auding-reading mode.

A similar program of testing was carried out with a group of 27 MLM undergoing remedial literacy training in the experimental school conducted by the Human Resources Research Organization for the U.S. Army at Fort Ord, California. The average reading grade level of ability of these men was 5.5,[1] with a range from 3.4 to 7.4

The results of these comparisons are given in Table 1. A major point of interest is that, for all three school grades (3, 4, 5), the auding performance surpassed reading performance. This is consistent with the developmental model described above.

Table 1

Comparison of Auding and Reading Performance of School Children and Marginally Literate Men (MLM)

(Entries are percent correct)

Mode of Presentation	Reading Ability Groups			
	Grade Levels			MLM
	3.6[a]	4.6[a]	5.6[a]	5.5[b]
Reading	43	60	69	71
Auding	52	71	84	68
Aud and Read	62	80	84	78

[a]Children in the 6th month of the 3rd, 4th, or 5th grades.

[b]Reading ability level measured by a standardized test.

[1] Reading grade level was measured by the United States Armed Forces Intermediate Achievement Test, which is the same as the Metropolitan Intermediate Achievement Test, Reading section.

A second point of interest is that the MLM of 5th grade reading ability *do not* show the same pattern of performance as do the 5th grade students. For the MLM there is no (statistically) significant difference between auding and reading. Furthermore, the MLM aud more like 4th grade students than 5th graders, although they read more like the 5th graders.

A final point of interest is that, for all except the 5th grade students, the combined auding and reading condition produced the highest scores. It is not clear why this should be so. Perhaps the most simple explanation is that, with two displays available, the chances are higher that the student will attend to the message by one or the other modality. Whatever the reason, the finding is of both theoretical and practical interest.

Theoretically, the finding that combined auding-reading presentations may produce better learning than either presentation alone suggests that these processes produce the same end result: a wholistic comprehension of the message. Reading comprehension is thus seen to be the same as auding comprehension. Stated otherwise, the internal messages produced by auding are the same as those produced by reading—at least so far as verbal semantic information is concerned. These findings are what would be expected if the developmental model stated earlier is true. That is, children first learn to comprehend language by auding. When reading is acquired later on, the child utilizes the same language and cognitive content used in auding.

The practical import of this finding is twofold. For one thing, for elementary grade children and MLM, it appears possible to increase learning from meaningful verbal discourse by combined auding and reading presentations. Of course, the present findings are limited to simple materials (of 5th grade reading difficulty) of some 15 minutes in duration.

These findings also suggest that the auding skill might be used to build-up concepts and knowledge which would then be accessible by reading when that skill is acquired. For teaching in ABE, this means that the MLM's oracy skills might be used to improve vocabulary and comprehension ability while reading training could emphasize the acquisition and automization of decoding skills for using the new vocabulary and comprehension ability in conjunction with the printed language. In other words, training for improving the language competency could be separated from training for improving reading competency so the student would not be confronted with both tasks simulteneously. This is the sort of training used in the "language-experience" method for teaching reading.

Rate of Comprehending: The preceeding work indicated that, when presented with materials of a 5th grade readability level, MLM reading at the 5th grade level performed very nearly like 4th and 5th grade students on tests of information retained after combined auding and reading of the material. In the above study, the rate of presentation of the auding message was 128 words per minute (WPM). This is a rate of presentation comparable to the reading rate of typical second graders, in the late spring, who are reading silently with 70% comprehension.[1]

Using the foregoing as a standard, the rate of presentation used in the above study would appear to have been well within the capability of both the grade school students and the MLM. It is reasonable to ask how well the MLM compare with grade school students when the rate of presentation is increased. We might expect that, whereas the MLM retain about as much as the 4th-5th grade students after combined auding and reading at 128 WPM, they could actually achieve the same level of retention at a faster rate, because adults are usually more rapid at cognitive activities than are elementary school age children.[2] Thus, we might conjecture that the MLM are more *efficient*

[1] *Controlled Reading*, Report from Educational Developmental Laboratories, Inc., Huntington, N.Y. (Undated, but circa 1969-70.)

[2] See studies cited in Gibson (1968), and Comalli (1970).

processors of the information in the message, even though their maximum level of retention is no greater than that of the grade school children.

To evaluate the efficiency of information processing in MLM and grade school children, the *Roland and Charlemagne* story used in the foregoing study was presented in combined auding and reading mode to a group of 5th grade students at their school, and a group of MLM at the experimental literacy school cited earlier. The first third of the *Roland* story was presented at 128 WPM, the second third at 228 WPM; and the final third at 328 WPM. Speech rates were adjusted by means of an Eltro Information Rate Changer, Mark II, which accelerates or decelerates speech rate without producing distortions in the frequency spectrum (e.g., such as the "chipmunk" sound which occurs when a 33-1/3 RPM record is played at 78 RPM).[1]

After each third of the selection, 15 4-alternative multiple choice questions were answered by the students. All questions called for retention of detail—no inference or reasoning items were included.

Because we were to use very fast rates of presentation, we were concerned that students might just ignore one or the other modality in the combined auding and reading tasks, i.e., they might simply aud and ignore the reading display or vice versa. To stimulate attention to both the auding and reading display, we developed a special modification of the *Roland* story. This modification consisted of the insertion of semantically reasonable alternative words into the printed text at various points. The following is an example of a sentence in the original text and that same sentence following modification:

Original: With the air of a lord he walked towards the Emperor's table.

Modified: With the air of a prince / king / lord he walked towards the Emperor's table.

With the modified text, the student's task was to simultaneously aud and read the story and, whenever a place was reached on the printed text which contained the three alternatives, the student was to circle the word heard spoken in the auding display. In the above example, the word *lord* would be heard in the auding display, and the students would circle the word *lord* on the printed text before them. In order to perform this task then, the students had to attend to both the auding and reading displays. Because this task permitted us to evaluate how well the students were tracking along with the printed and auding displays, we will refer to this task as the *tracking* task.

Figure 1 presents results for both the tracking task and immediate retention tests for each speech rate for the 5th grade students (n = 25) and two groups of MLM: men reading below the 6.0 grade level (n = 18; mean = 4.6) and men reading at and above the 6.0 level (n = 17; mean = 8.0).

The most apparent effect is that of rate of presentation. For all groups, increasing the presentation rate produced large decrements in the amount of information retained (Figure 1B). In contradiction to the reasoning above about the possible superior efficiency of information processing by MLM, the present data indicate that, if anything, the MLM are *less* efficient than the 5th grade students. For one thing, we note that, even though one group of MLM read, on the average, at the grade 8.0 level, they retained the *same* amount as the 5th grade students at the 128 and 228 WPM rates, and dropped slightly below the 5th graders at the fastest speech rate. Marginally literate men reading at the 4.6 grade level scored significantly less than the 5th graders on the immediate retention test, and this was true for all three rates of presentation.[2]

[1] Speech rate equipment is described in: Foulke and Sticht (1969).

[2] Statements of significance based on results of separate analyses of variance for the tracking and immediate retention test results.

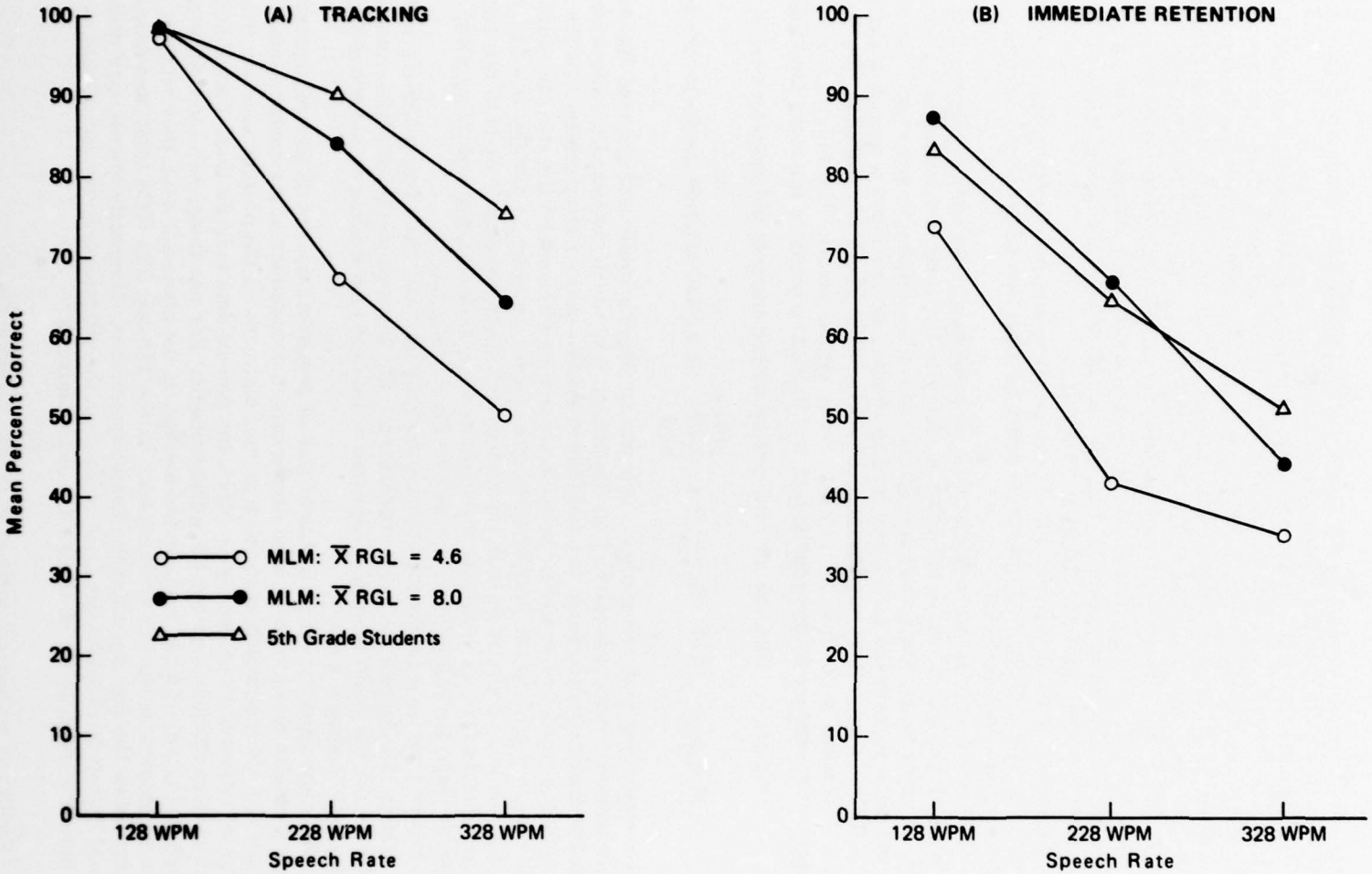

Figure 1. **Mean Percent Correct on Tests of Tracking and Immediate Retention at Three Speech Rates for 5th Grade Students and Two Groups of MLM.**

A clearer indication of the differential effects of the rate of presentation on the three groups is given by the tracking data (Figure 1A). There it is seen that all three groups were equally effective in performing the task of circling the correct words on the modified *Roland* passage, with all three groups achieving near perfect scores (97% correct). However, with increased presentation rate, the three groups become clearly discernable, with the 5th graders performing most accurately, the lower reading ability MLM performing least accurately, and the higher reading ability MLM performing at a medium level of accuracy. These data suggest that, whereas all groups experienced difficulty in tracking both the printed and spoken messages at the faster rates of presentation, the 5th grade students were most efficient at performing the tracking task while also processing information for subsequent use in the immediate retention test, being able, in this instance, to retain information as well as MLM reading at the 8th grade level, while outperforming them on the tracking task at the faster speech rates!

These data reveal something of the difficulties involved in the use of the *reading grade level* as an index of competency for MLM. The inclination is to think that if MLM receive a RGL score of 8.0 on a standardized reading test that they are better readers than 5th grade students. Actually, as the present data suggest, while test scores may accurately indicate that MLM reading at the 8.0 RGL are better readers than *other MLM* reading below the 8.0 level, they do not necessarily accurately reflect the relative competencies of MLM and *typical children* who read at or below the same RGL of achievement.

The present data suggest that an especially important difference between the MLM and school children is their ability to handle information presented at moderately or high rates of speech. For instance, the 228 WPM speech rate used in the present study is a typical rate for students reading silently in the 10th grade. The 328 WPM rate exceeds the silent reading rate of the typical college sophomore.

The fact that MLM reading in the range from grades 6.0 to 10.9 could not handle these rates better than 5th grade children suggests the need for extensive training in *rate* of comprehending language, whether presented orally or in print. It is not sufficient to simply train ABE students up-to the point of being able to score at the 8th grade level on a standardized test which is designed to reveal reading *power*. Reading (comprehending) *speed* is necessary for alleviating functional differences between MLM and typical school grade or other students.

Summary and Implications for Teacher Training

In this paper we have very briefly described a simple model of the major stages involved in the acquisition of reading skills by the "typical" child in our literate society. The model emphasizes the primacy of language before reading, and the fact that reading is built upon a foundation of language competency. One aspect of language competency is the ability to comprehend spoken language, an ability called *auding*, to distinguish it from the more general process of listening, which may involve listening to music, bird calls, etc.

A consequence of the model is that children ought to comprehend better by auding than by reading in the pre-school and early years of schooling. Research was described which indicated that this was indeed the case for a group of 3, 4, and 5th grade students in an elementary school above average in socioeconomic level. A group of marginally literate young men (MLM) reading at the 5th grade level did not show this relationship, indicating that both their language skills and reading skills were low.

Additional research indicated that a group of 5th grade children were more effective than MLM in tracking a message presented in a combined auding and reading mode at speech rates of 228 and 328 wpm. They comprehended the materials at the faster speech

rates as well as a group of MLM reading at the 8th grade level, and better than a group of MLM reading at the 4th grade level, indicating that these 5th grade students were more efficient information processors than were the MLM.

It must be stressed that the research reported here represents a very limited data base, and that we have discussed group rather than individual performance. Hence any implications drawn for teaching should be evaluated in recognition of these factors and in the light of the reader's experience with MLM and ABE. With these conditions in mind, the following implications are drawn:

1. MLM are typically low in language skills as well as reading skills. Thus, simply providing training in the decoding (phonics; word analysis) skills will not suffice to render the MLM equal to his peers in reading competency. Basic vocabulary, linguistic skills, and verbal concepts must be explicitly taught, and this can be done by means of the oracy skills of auding and speaking. New language competency obtained by oracy training should transfer to reading when the decoding skills are well learned. Instruction should thus proceed from *oracy-to-literacy* in the teaching of new language competencies.[1]

2. A primary goal of reading training in ABE should be to first teach students to comprehend by reading what they can comprehend by auding. Whereas MLM may enter an ABE program at this level of competency in reading other adults may not. The first goal of the ABE teacher in this case should be to bring the adult's oracy and literacy skills to the same level of effectiveness for communication.

3. Language and reading training should stress the development of *efficiency* in the use of these competencies in addition to the learning of new language and reading skills. Too often ABE programs stress maximal achievement without providing the extensive drill and practice needed to improve the speed and scope of use of skills already learned. Efficiency as well as new learning should be a goal of ABE.

4. Because MLM, and presumably other ABE students, are low in both extent and efficiency of language and reading skills, education and training in ABE should be viewed as a long-term commitment. Too often ABE is viewed as remedial, in which students are construed as suffering from some temporary malady which, if treated with a shot of a few weeks of decoding skills training and developmental reading will disappear, leaving the "typical" American of at least average intelligence and inclined toward the Protestant ethic. This is a misconstruction of the situation. Adult basic education should be viewed as *education*, not a remedy for an intellectual disorder. Education builds knowledge, and knowledge structures grow, they are not remediated. Growth takes time and hence ABE requires time. Failure to recognize this has rendered many short-ranged programs short-lived. Hopefully, the kind of information obtained in research such as described here and in other chapters of this book can impress upon policymakers the need for long-term commitments to Adult Basic Education.

[1] For a review of literature on the transfer of competency from oracy to literacy skills see: Sticht and James (1973).

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